

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/000749

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: C12Q 1/68 C12N 15/00 A01K 67/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See electronic database

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See electronic database

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIDS; MEDLINE; CAPLUS: SOCS, suppressor cytokine signaling, G-CSF, granulocyte colony stimulating factor

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | Matsumoto et al (2003) 'A role of suppressor of cytokine signaling 3 (SOCS3/CIS3/SSI3) in CD28-mediated Interleukin 2 Production' The Journal of Experimental Medicine. Vol 197(4): 425-436<br>See in particular 4 <sup>th</sup> paragraph, page 427 | 16, 17                |
| X, Y      | Crocker et al (2003) 'SOCS3 negatively regulates IL-6 signaling <i>in vivo</i> ' Nature Immunology. Vol 4(6): 540-545<br>Published online May 18 2003<br>See in particular page 541  | 16, 17                |

☒ Further documents are listed in the continuation of Box C

☐ See patent family annex

|   |  |
|---|--|
| * Special categories of cited documents:  |  |
| "A" document defining the general state of the art which is not considered to be of particular relevance  | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  |
| "E" earlier application or patent but published on or after the international filing date   | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" document referring to an oral disclosure, use, exhibition or other means  | "&" document member of the same patent family  |
| "P" document published prior to the international filing date but later than the priority date claimed  |  |

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|--|--|
| Date of the actual completion of the international search<br>20 August 2004  | Date of mailing of the international search report<br>26 AUG 2004      |
| Name and mailing address of the ISA/AU<br>AUSTRALIAN PATENT OFFICE<br>PO BOX 200, WODEN ACT 2606, AUSTRALIA<br>E-mail address: pct@ipaustalia.gov.au<br>Facsimile No. (02) 6285 3929 | Authorized officer<br><br>LEXIE PRESS<br>Telephone No : (02) 6283 2677 |

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| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
|---|---|-----------------------|
| Category*   | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
| Y   | Georgiades et al (2002) 'vavCre Transgenic mice: A tool for mutagenesis in hematopoietic and endothelial lineages'<br>Genesis. Vol 34: 251-256<br>See the whole document  | 16, 17                |
| X   | Hörtner et al (2002) 'Suppressor of cytokine signaling-3 is recruited to the activated granulocyte-colony stimulating factor receptor and modulates its signal transduction'<br>The Journal of Immunology. Vol 169: 1219-1227<br>See the whole document | 13 to 15              |
| X   | Hermans et al (2003) 'Signaling mechanisms coupled to tyrosines in the granulocyte colony-stimulating factor receptor orchestrate G-CSF-induced expansion of myeloid cells'<br>Blood. Vol 101(7): 2584-2590<br>See the whole document                   | 13 to 15              |
| P, X  | Crocker et al (2004) 'SOCS3 is a critical physiological negative regulator of G-CSF signaling and emergency granulopoiesis'<br>Immunity. Vol 20: 153-165<br>See the whole document  | 1 to 17               |
| P, X  | Kimura et al (2004) 'SOCS3 is a physiological negative regulator for granulopoiesis and granulocyte colony-stimulating factor receptor signaling'<br>The Journal of Biological Chemistry. Vol 279(8): 6905-6910<br>See the whole document               | 1 to 17               |
| P, X  | Van de Geijn et al (2004) 'Distinct activities of suppressor of cytokine signaling (SOCS) proteins and involvement of the SOCS box in controlling G-CSF signaling'<br>Journal of Leukocyte Biology. Vol 76: 237-244<br>See the whole document           | 1 to 15               |
| P, X  | Van de Geijn et al (2004) 'G-CSF receptor truncations found in SCN/AML relieve SOCS3-controlled inhibition of STAT5 but leave suppression of STAT3 intact'<br>Blood. Vol 104(3): 667-674<br>See the whole document                                      | 1 to 15               |

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### Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: 1 to 12  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
  
See supplemental sheet
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

### Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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### Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

#### Continuation of Box No: V

Claims 1 to 12 relate to a disproportionately large number of possible compounds which are not supported by the description according to Article 6 PCT or can be considered disclosed according to Article 5 PCT. Claims 1 to 12 lack the appropriate support and the patent application lacks the required disclosure to such an extent that a meaningful search encompassing the entire scope of claims 1-12 is impossible. For this reason the search was directed at the inventive concept of the invention which appears to be the use of a transgenic animal with altered levels of SOCS3 to determine compounds that modulate G-CSF activity by modulating SOCS3 activity.

The Applicant's attention is drawn to the fact that claims, or parts of claims relating to inventions in respect of which no International Search Report has been established need not be the subject of an International Preliminary Examination.